

CULTURAL DIFFERENCES IN REFERENCES TO INTERNAL STATES AND
BEHAVIOR: THE EFFECTS ON CHILDREN'S EMOTION UNDERSTANDING

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ABSTRACT

The current study examines cross-cultural differences in mother's use of internal state language and behavior references and its effects on children's emotion situation knowledge. Results indicated that, as hypothesized, European American mothers made more references to thoughts and emotions, while Chinese immigrant mothers focused more on behavior. Mother's use of internal state language was found to predict children's emotion understanding, however, behavioral references was negatively related. Finally, mothers' use of internal state language mediated the cultural differences in children's emotion situation knowledge.

BIOGRAPHICAL SKETCH

Stacey N. Doan received her bachelor's degree *cum laude* at Carleton College in Northfield, Minnesota in 2002. After graduating, she worked as a research specialist for the University of California system. She is currently pursuing her P.h.D at Cornell University. Her research interests focuses on examining cultural pathways in cognitive and social emotional processes.

To all the writers who have exposed me to truth.

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INTRODUCTION

The idea that parent child conversations serve as an arena, in which children learn the necessary skills to become competent members of their culture is rooted in Vygotsky's socio-cultural theory of development. Vygotsky (1978) proposed a framework for understanding development that placed at the forefront cultural and historical factors. The *process* and *end product* of what is deemed "successful development" varies as a function of the cultural and social milieu of any given individual. Thus, cross-cultural differences in parenting behavior and socialization practices are inherently linked to children's abilities to adapt and develop abilities that match up with the demands of their culture.

In the past decade or so, researchers have specifically identified maternal mind-mindedness as a particular type of interaction style that seems to be a key mechanism in children's development of complex social cognitive abilities (Meins & Fernyhough, 1999; Meins et al., 2003; Meins et al., 2002). Mothers who are high on MM treat their children as autonomous, independent individuals with desires, feelings, and thoughts; they emphasize their children's mental attributes rather than physical appearance or behavioral tendencies. The specific aspect of MM that has been demonstrated to be pivotal to children's understanding of self and other is the frequency with which mothers refer to mental states, desires and emotions (for a recent review see Symons, 2004). However, a limitation of the previous literature is that there are no studies that have systematically examine whether this proclivity to focus on mental states differ across cultures despite powerful evidence that illustrates the instrumental role that cultures plays in influencing the way that mothers socialize their children in the context of parent-child conversations (Fivush & Wang, 2005; Miller, Wiley, Fung, & Liang, 1997; Mullen & Yi, 1995; Wang, 2001; Wang, Leichtman, & Davies, 2000).

The purpose of this paper is threefold. First we wish to examine cross-cultural differences in references to internal states and overt behaviors. Secondly, we examine the relation between internal state language and behavior references to children's emotion situation knowledge, and finally we test a mediation model examining how emphasis in internal states may mediate cultural differences in children's emotion understanding.

Language and children's understanding of mental states

Vygotsky argued that the mechanism by which cognitive and emotional abilities are shaped is through the continuous interaction between language and thought, specifically, the dialogue and social interaction between a mother and her child (Vygotsky, 1978). Indeed, language is a unique and powerful tool within human culture, an internal, cognitive representation system as well as an external, communicative mechanism by which the internal - thoughts, emotions, feelings become conveyed, externalized. This process of using language to "move" the inside (e.g. thoughts, feelings) to the outside plays a key role in helping children develop complex social-cognitive abilities (Dunn, Brown, & Beardsall, 1991; Symons, 2004). Indeed, recent studies have demonstrated that maternal mind-mindedness (MM) the tendency of the caregiver to focus on the child's mental states rather than physical appearance and actions, (Meins, Fernyhough, Fradley, & Tuckey, 2001; Meins et al., 2003) is a powerful predictor of children's social cognition.

The zone of proximal development (Vygotsky, 1978)) serves as framework for which interactions with more adults scaffold children's understanding of mind. Through engaging in collaborative conversations with adults, peers and siblings, children's attention are being drawn to the importance of internal states as a driver of behavior (for both oneself and others), in addition to being exposed to the possibility of differing perspectives and conflicting emotions for self and others in any given

situation. Indeed, parent child conversations in particular has been identified as a key factor in promoting children's abilities to deduce mental states, understand the psychological processes of themselves and others, and grasp the effect of desires and beliefs on behavior (Astington & Baird, 2005; Carpendale & Lewis, 2004; P.L. Harris, Rosnay, & Pons, 2005) . Particularly, parental use of internal state language has been linked to children's emotion understanding (Taumoepeau & Ruffman, 2006), the development of false belief (Cutting & Dunn, 1999; Meins & Fernyhough, 1999) as well as general children's theory of mind abilities (Ruffman, Slade, & Crowe, 2002).

Children's usage of internal state terms is one index of their social understanding. Children progress from no mental state language usage to references to desire at about 2 or 3 years of age, to beliefs at 4 in rather linear steps (Perner, 1991; Wellman, 1990). However, there is marked variation in the advancement of each individual child. As previously discussed, exposure to internal state language is one factor that drives the individual difference. Under that over-arching umbrella, however, references to the child's own internal states seem to be most consistently correlated with children's mental state language usage and emotion understanding (Taumoepeau & Ruffman, 2006). This suggests that at its roots, MM is based on research which has emphasized the important role of treating infants as autonomous individuals and intentional agents ((Meins et al., 2003).

In addition, at its core, the expression of internal states is a mechanism to convey individual realities and experiences to others. The usage of internal state language suggests that emphasis should be placed on the internal – the psyche of the individual, as oppose to the external – social and contextual factors. Research examining mental state language is implicitly placed under the larger theoretical frameworks of a Northern American psychology culture that places importance on individualism, autonomy and independence. Despite research documenting cross-

cultural differences in these arenas (Greenfield, Keller, Fuligni, & Maynard, 2003; Markus & Kitayama, 1991), and its effect on communication styles and preferences (Kim, 2002) to the best of our knowledge, there is currently no study that directly examines the relationship between children's exposure to internal state language and their social cognition in different cultural contexts.

Cultural differences in socialization of internal versus external emphasis and its consequences

Hansen argues that a culture's theory of mind is related to its theory of language (Hansen, 1983, 1989). For the west, language maps onto belief psychology, with the function of language focused on being descriptive or representative. In this context, a major assumption of language is that its purpose is to convey meaning, including ideas, thoughts and concepts. This is in contrast with traditional Chinese culture, where language serves a regulative function. The importance of language does not lie in its ability to express thoughts, feelings and ideas, but its ability to guide behavior and coordinate social interactions. As Hansen writes "...the function of words is to engender and express attitudes with implications for action rather than to express some 'content' such as the speaker's thoughts which either reflect or fail to reflect reality...The relative stress on the attitude forming functions of language versus the content expressing function is one of the crucial and most frequently ignored contrasts between the Western and Chinese traditions" (Hansen, 1983, p.61). These different conceptions of language and its function may be rooted in the values of each respective cultural group.

Cultures that are individualistic in nature, emphasizing the important of individual thoughts, ideas and beliefs would encourage the expression of internal states and emotions which are affirmations of an individual self, while cultures that are collective in nature would focus on emphasizing the importance of behavior (and its regulation) as they have direct consequence on group functioning. Individual realities and emotions, in this context, would be de-emphasized as they may be divisive (Markus & Kitayama, 1991). One consequence of this value system is that conceptions of how one comes to understand self and others may be radically different. For example, identifying stable and enduring traits, a fundamental tendency in person perception among Western cultures (Asch, 1987; Gilbert, 1998), is important because internal dispositions are used to predict future behavior. In contrast, the Chinese concept of *jen*, emphasizes that an individual's interpersonal interactions are more important than internal qualities in understanding one's personality (Hsu, 1971). Supporting this view, are studies that demonstrate that Asians are less susceptible to the fundamental attribution error, the tendency to interpret behaviors as driven by internal states rather than situational pressures (Masuda & Nisbett, 2001; Morris & Peng, 1994a, 1994b), and that Asians tend to rely more on behavior-descriptive verbs in person perception (Maas, Kurasawa, Politi, & Suga, 2006).

Research examining parenting behaviors and socialization practices has suggested that these important distinctions play out in the ways that parents interact with their children. While European Americans focus on self-affirmation and self-esteem building, Chinese mothers tend to take a training perspective, designed to instill socially desirable and culturally appropriate behavior (Chao, 1994, 1995; Miller

et al., 1997; Wu, 1986). Within the context of mother child conversations, American mothers often took a child-centered approach, where the child is the focal point of the conversation and the talk surrounded the child's interests and personal attributes, while Korean (Mullen & Yi, 1995) and Chinese (Wang, 2001; Wang et al., 2000) mothers often took a mother-centered approach, where the mothers set the direction for the conversation focusing on didactic talk which emphasized interpersonal relations, moral rules, and behavioral expectations. Research examining family conversations showed that Caucasian parents encourage children to describe their experiences, wishes, and perceptions. Members within the family discuss and report distinctive, individual realities. On the other hand, conversations in Japanese American homes structure their discourse in such a way that family members co-narrate and comment on what the family as a whole is doing rather than report distinct and individual experiences (Martini, 1998).

Particularly, relevant to the current research, Wang, Leichtman and Davies (2001) found that European American mothers made more metacognitive comments and were more likely to make statements or ask questions about the child's personal needs, preferences, judgments and opinions during a memory sharing and story telling task. These differences in emphases appear to play out even when the subject at hand is emotional. For example, Wang and her colleagues examined Chinese and American mother's conversations about emotionally salient events (Fivush & Wang, 2005; Wang, 2001). findings from their study showed that while across both cultures, the sheer volume did not differ American-mother child pairs took more conversational turns, suggesting a more interactive approach that encourages the child to participate.

American mothers also provided more causal explanations for both their children and others' emotions. In addition, Chinese mothers tended to emphasize social norms and behavioral expectations.

Research examining Chinese children's usage of internal state language have found that while Chinese children acquire desire terms earlier than their European American counterparts, they lag behind in using "belief" terms such as think, and know (Tardif & Wellman, 2000). Moreover, Chinese toddlers learn verbs (i.e., words describing behavior) at a more rapid rate than American toddlers do (Tardif, 1996; Tardif, Gelman, & Xu, 1999). In addition, in examining the descriptions of animated scene perceptions between Japanese and American students, Japanese participants made more references to behavior than American participants (Masuda & Nisbett, 2001). Wang and her colleagues (2001) have found that Chinese children often describe routine events and social interactions while American children provided elaborate and detailed memories that focused on their own roles, preferences and feelings. Chinese mothers' emphasized their children's relationships with other rather than psychological attributes (Chao, 1995). Furthermore, Asian American adults were more likely to pay attention to somatic rather than affective aspects in the experience of depression, this tendency reversed itself as they become more acculturated to American culture (Chen, Guarnaccia, & Chung, 2003).

What are the consequences of socializing children to focus on internal states or behavior? As previously discussed, research has demonstrated that mother's who use higher levels of internal state language usage tend to have children with better emotion understanding (Taumoepeau & Ruffman, 2006). Emotion understanding is particularly

interesting as there have been empirical research to suggest that Chinese children lag behind in this area. For example, Chinese infants and children have been shown to be less expressive and less reactive (Camras et al., 1998; Kagan et al., 1994). They also show lower emotional understanding (Wang, 2003; Wang, Hutt, Kulkofsky, McDermott, & Wei, 2006), and less understanding of appropriate display rules (Garrett-Peters & Fox, 2007) than European American children. On the other hand, Asian children have higher levels of behavior inhibition (X. Chen et al., 1998) .

Based on these premises, we hypothesized that in examining mother child conversations, Chinese mothers would make more references to behavior while European American mothers would make more references to internal states. In addition, the emphasis on behavior versus internal states would have an effect on children's emotion understanding. Finally, we hypothesized that cultural differences in internal state language usage mediate cultural differences in children's emotion understanding.

METHODS

Participants

The current study is part of a larger, longitudinal study examining mother child interactions and its correlates with children's psychosocial outcomes. The children engaged in a range of tasks but only those relevant will be discussed here. Sixty immigrant Chinese-American (30 males, mean age of 35 months) and 71 European American (37 males, mean age of 35.49 months) mother - child dyads from upstate New York participated in the current study. One Chinese-American participant had to be dropped from the study for failing to participate in the story reading task. Children were recruited through local schools as well as by word of mouth. All children came from middle-class backgrounds, with the majority of parents having obtained a higher education degree. Chinese immigrant families were originally from mainland China, Hong Kong, or Taiwan. The children were first-generation born in the United States.

Procedure Two female researchers visited the home of children participating in the study. Chinese-English bilinguals visited the Chinese immigrant families and conducted the study in the language which the children were most comfortable with. One researcher who would later interviewed the child play with the child for a short time to establish rapport. While the researcher and child were engaged in their tasks, Mothers filled out a demographic questionnaire in their language of choice. The questionnaires had been translated and back translated to insure equivalence. In addition, mothers fill out a shortened version of Child Development Inventory (Ireton, 1992).

Mother's use of internal state language was assessed during a picture book reading task. Mothers were asked to read to their child as they normally would a picture book (with no words) about a bear going to the market with his mother. The book was carefully selected to be culturally unbiased, describing events that were culturally neutral. They were told to tell the story anyway they like and to take as long as they wanted to. Mother-child interactions were videotaped for later analysis.

Coding

Coding of the data was done in the original language. A native speaker of English coded the American data and a native Chinese speaker coded the Chinese data. Repeated training sessions were held to ensure that both coders were applying the same definitions of the coding scheme to the two data sets. 20% percent of all narratives were coded for inter-coder reliability estimates.

Language: Since language ability has been correlated with higher accuracy in attribution of beliefs and emotions in both normal and autistic children (Happe, 1995), we measured children's language skills based on maternal reports on the language scales from the CDI. The scale was translated and back translated to ensure equivalence. In addition, English words and grammatical rules that are not used in Chinese were exchanged for their Chinese equivalents. Finally, the measure was pilot tested among Chinese immigrant families. Cronbach's alpha for the language measure was .93.

Children's emotion understanding: Children's emotional situation knowledge was assessed using an emotion production task adapted from previous research examining children's abilities in understanding situations that would provoke emotional states (P. L. Harris, Olthof, Terwogt, & Hardman, 1987). Children were asked to describe situations that were most likely to evoke fearful, sad, angry and

happy emotions. The researcher presented each term to the child and then asked the child to describe situations that would elicit such an emotion (e.g. “What makes people feel sad?”) This task was followed by a relatively simpler task asking children what situations elicit the feeling in the child (e.g. “what makes you feel sad?”). For each question, the researcher prompted the child to provide as many situations as possible (e.g. “what else makes people feel sad?”) until the child indicated that that he/she was finished. The values of Cohen’s kappa for Chinese children ranged from .71 to 1.00, with a mean of .84; and values for the White children ranged from .66 to 1.00, with a mean of .75. Thus, all kappa coefficients were within the substantial to excellent range (Fleiss, 1981).

For examining mother’s references to internal states we followed Ruffman et al (2002)’s methods in examining the frequency of utterances rather than the proportion (e.g. of all utterances). Ruffman argues that each utterance provides additional input, reflecting the sheer amount of information mothers are providing (see also (Farrant & Reese, 2000) just as more siblings and increased time with older individuals lead to increases in social cognitive abilities (Lewis, Freeman, Kyriakidou, Maridaki-Kassotaki, & Berridge, 1996; Ruffman, Perner, Naito, Parkin, & Clements, 1998). Furthermore, previous research examining both proportion and frequency of internal state language did not reveal significant differences (Meins et al, 2003). However, for certain analyses we controlled for the length of time spent on task, in order to rule out the possibility of overall parental involvement and verbosity. Percent agreement ranged from 92% to 100% with a mean of 96% for the Chinese data and 79%-96%, with a mean of 90% for the English data.

Internal states: We use a modified version of Ruffman et al (2002)'s coding scheme to score mother's references to internal states. The original coding scheme was based on the work of Bartsh & Wellman (1995) who used the CHILDES database to examine children's utterances in everyday situations. The coding while being exclusive was not exhaustive. Mental state utterances included references to think/know, desires (want, like, love), modulations of assertions (might, maybe), and emotions (sad, pleased). Finally, there was a final category which included all other mental states (e.g. remember, decided).

Behavior: References to overt behavior include physical actions (running, playing) and potential actions that are not necessarily seen in the book (e.g. he's going to go home now). Additionally, we distinguish between pure descriptions of behavior (e.g. he is playing with his friend) versus behavior that were linked to mental states (e.g. I think he's walking home.) However, preliminary analyses revealed no difference in the patterns of results, thus all behavior references were collapsed into one category.

Behavioral descriptions of emotions: We distinguish behavior/descriptive manifestations of emotions and pure internal emotional states. An example of the latter would be statements such as "the bear is crying" or "aw, the bear has tears on his face". Ruffman et al (2002) argues that these terms describe physical manifestations rather than internal experience. An example, of a pure emotional reference would be "the bear is sad".

Internal state/behavior ratio: Because mothers could be both high on emphasizing internal states and behavior, we computed a ratio to index an orientation towards being mindful of internal states versus external behavior.

RESULTS

Results are presented in accordance with the three hypotheses. The first group of analyses examined cultural differences in group (culture and gender) and individual variations (child age, language skills) in references to internal states and behaviors. The second set of analyses is aimed at determining the relationship between types of elaborations (internal states and behavior) and children's emotion understanding. The final set of analyses test the mediational role of internal state references for culture on children's emotion understanding. Some of the children did not complete all the tasks, thus the degrees of freedom varied slightly across tests.

Cultural differences in emotional understanding and maternal references to internal states and behaviors

To rule out group differences as a function time spent on task, mother's education or family size, preliminary analyses were done. Results revealed no significant cultural differences on time spent on task, or mother's education and no main effect or interaction effects for birth-order. To test our first hypothesis that American mothers were more mindful of their children's internal states, we ran an Analysis of Covariance (ANCOVA), with mother's education level, children's age, gender, language ability, and time spent on the task as covariates. Across the collapsed internal state language score, Caucasian mother's ($M=30.08$, $SD=19.09$) made significantly more references to internal states than did Chinese mother's ($M=10.22$, $SD=7.1$), $F(1,120)=68.12$, $p<.001$. There was neither a main effect of gender, nor a culture by gender interaction. Next, we ran the same model for would make more

references to behavior than European American mothers ($M=36.68$, $SD=14.90$) was supported $F(1,120)=25.66$, $p<.001$.

Table 1

Descriptive Statistics for Mother and Child Variables by Culture

Variable	Chinese Immigrant		European American		Range
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Child variables					
Language	74.91	14.84	82.48	11.64	26-99
Age (in months)	35	3.43	35.49	3.311	30-43
Mother variables					
Think/know references	3.44	4.47	17.465	14.81	0-67
Desire references	3.39	3.42	4.23	4	0-16
Pure emotion references	1.74	3.11	3.11	2.7	0-14
Emotion based behavior	2.73	2.27	.986	1.15	0-9
Modulations of assertions	.949	1.92	3.58	3.31	0-14
Other mental states	.73	1.59	1.73	1.47	0-9
Behavior references	48.93	20.49	36.68	14.90	10-134
Internal state/behavior ratio	.22	.13	.85	.60	.4-4.56

Note. European American children had significantly higher language scores than Chinese immigrant children ($p<.05$). All mother variables were significantly different across culture at the $p<.001$ level, with the exception of desire references which were not significantly different across cultures. references to behavior. Our hypothesis that Chinese mothers ($M=49.01$, $SD=20.5$)

would make more references to behavior than European American mothers ($M=36.68$, $SD=14.90$) was supported $F(1,120)=25.66$, $p<.001$.

To examine specifically, which aspect of internal state language (cognitions, emotions, desires, etc) was different across culture, we ran analyses for each of the internal state components. As hypothesized, across all levels of internal state language reference, with the exception of desire, Caucasian mother's made significantly more references than did Chinese immigrant mothers. On the other hand, Chinese mother's were also more likely to describe emotions in behavioral and descriptive terms rather than through internal state references, $F(1,120)= 21.45$, $p<.001$. Finally, Caucasian

mother's ($M=.85$, $SD=.60$) had a higher internal state orientation than did Chinese mothers ($M=.216$, $SD=.125$), $F(1,120)=53.08$, $p<.001$. Table 1 lists the means and standard deviations of mother and child variables.

Cultural differences were also found in children's emotion understanding score. Factoring out gender, age and language, Caucasian children scored significantly higher than the Chinese immigrant children, $F(1, 124)=48.2$, $p=.000$.

Relation between mother's use of internal state language and behavior to children's emotion understanding

The second goal of the current study is to examine the role of internal state language and behavior references to children's emotion understanding across both Chinese and European American cultures. Zero-order correlations were first calculated to examine the interrelations among mother's references to internal states, behaviors and children's emotion understanding scores, along with age and language skills (see Table 2). Predictably, children's language ability was positively associated with their emotion understanding score, and mother's references to think and internal emotions, as well as their internal state orientations. Children's emotion knowledge score was also highly associated with mother's references to cognitions (think/know), modulations of assertions, other internal states and their orientation towards internal states. Interestingly, children's emotion scores were negatively associated with references to behaviors as well as emotion based behaviors.

Table 2
Zero-Order Correlations Among Mother and Child Variables

	1	2	3	4	5	6	7	8	9	10	11
<i>Child Variables</i>											
1. Age	--	.33***	.01	.11	-.05	-.14	.245**	.09	.06	-.04	.15
2. Language		--	.28**	.22*	.21*	-.20*	.15 ⁺	.16 ⁺	.17 ⁺	-.02	.26**
3. Emotion knowledge			--	.42***	.14	-.33***	.06	.31***	.22*	-.26**	.48***
<i>Mother variables</i>											
4. Think/know				--	.28**	-.21*	.23**	.50***	.28**	.06	.81***
5. Pure emotion					--	-.08	.20*	.13	.31***	.18*	.23*
6. Emotion based behavior						--	.01	-.19*	-.07	.44***	-.27**
7. Desires											
8. Modulations of assertions								.112	.19*	.01	.44***
9. Other mental states								--	.37***	.08	.31**
10. Behavior									--	.17	-.26**
11. Internal state/behavior ratio										--	

Note. ⁺ $p < .10$; * $p < .05$, ** $p < .01$, *** $p < .001$ (all significance tests are two-tailed).

First, a regression was performed on children's emotion understanding with culture, gender, age and language as predictors. These variables combined predicted 32% of the variance in children's emotion understanding, culture by far being the most powerful predictor, $F(4,124)=16.04$, $p<.001$. Next we added mother's references to all internal state and references to behaviors to the model increasing the variance explained to 35%, $F(6, 122)=12.701$, $p<.001$. Our results indicated that mother's use of internal state language positively predicted children's emotion understanding score while the association with behavior was negatively related. Table 3 shows the summary of results from the regression analyses. Interestingly, there was a trend for a culture by behavior interaction ($p=.1$), separate analyses by culture revealed that the negative association between behavior and emotion understanding was significant for European Americans ($p<.05$) but not for Chinese immigrants. Finally, we tested a similar model, but instead of using individual internal state and behavior scores, we used the internal state/behavior ratio resulting in similar results. Mother's internal state orientation positively predicted children's emotion understanding score ($p<.05$) independent of culture, gender, age and language.

Does internal state language usage mediate cultural differences in emotion understanding?

Our final set of analyses was designed to test the hypotheses that mother's references to internal state language may mediate the cultural differences in children's emotion understanding abilities. To establish conditions for mediation (Baron & Kenny, 1986), culture was first regressed on children's emotion understanding score (while controlling for age, language, gender and behavior references), the result was

significant, ($\beta = -.520$, $p < .001$). Further analyses demonstrated that culture had an effect on internal state language usage ($\beta = -.676$, $p < .001$), and that internal state language predicted children's emotion understanding ($\beta = .451$, $p < .001$). Finally, when putting both internal state and culture were placed in the model, the standardized coefficient of culture was reduced to $-.348$, however the effect of culture still remained significant ($p < .01$).

To determine the degree to which internal state language usage accounted for the effects of culture on children's emotion understanding, the total culture effect was computed by summing the direct and indirect effects, using the standardized coefficients. The indirect effect is calculated by multiplying the two corresponding paths linking culture to internal state language and internal state language to emotion understanding, ($.68 \times .25 = .172$). As a mediator, internal state language accounted for 33% of the total effect of culture.

DISCUSSION

To the best of our knowledge this is the first study to systematically examine cross-cultural differences in maternal references to internal states and behaviors and its effects on children's emotion understanding. Results from the study demonstrate the importance of how language operates in different cultural settings and thus have differential effects on children's social cognitive abilities. As hypothesized, European American mothers used significantly more internal state language references than Chinese immigrant mothers while Chinese immigrant mothers made more references to behaviors than European American mothers. This held true even when talking about emotion, European American mothers were more likely to refer to internal psychological states while Chinese immigrant mothers prefer describing the physical manifestations of emotions.

Results from the current study also supported previous findings linking mother's usage of internal states to emotion understanding (Taumoepeau & Ruffman, 2006), however, our data also suggests that references to behavior was negatively associated with children's emotion understanding. While references to mental states encourage children to reflect on their thoughts and feelings as well as others, focusing children on behavior may place or maintain their attention to external cues thus serving to undermine the benefit of any exposure to internal state language. In addition, our findings differ slightly from the previous research in that we found mother's references to cognitions (think/know) to be most related to children's emotion understanding while Taumoepeau & Ruffman identified desire language as

the strongest correlate. Most likely this is a result of the difference in age groups, as the children in our study were slightly older (35 months compared to 15-24 months). The differential findings support the idea that there are sensitive periods to the type of input that may be useful. Children acquire desire language first as it often has clear behavioral implications as well as being easily demonstrated (children can point to what they want), while it is much more difficult to externalize concepts such as thoughts and ideas. The children in our study, being older, at the age where they are just beginning to use (Bartsch & Wellman, 1995) terms like think and know may be more receptive to utilizing cues that are focused on cognitions.

Most importantly, this is also the first study to demonstrate that mother's use of internal state language partially mediated cultural differences in emotion understanding. Regardless of culture, mothers who focused on thoughts, feelings and desires have children who have higher emotion understanding scores. It is important to note that only partial mediation was established underscoring the importance for future research to examine how across and within cultures, children acquire knowledge about emotion states, their causes and antecedents. In addition, our study only examined one time point, future studies should take a longitudinal approach, not only to aid in establishing causality but to explore cross-cultural trends in types of internal state references as the child develops.

Finally, we believe it is strategically important to examine the effects of differential socialization emphasis on immigrant children straddling two cultures. For example, Chen and his colleagues have found that while behavioral inhibition was valued and appreciated in Chinese cultures, it was considered problematic behavior in

a Western context (X. Chen et al., 1998). Furthermore, Asian children in American culture seem to experience lower self-esteem and higher depression rates than their peers as well as have less intimate friendships (Greene & Way, 2005; Way & Chen, 2000). Do these factors link back to the clash in the parenting styles they experience at home and what they see in the dominant society? The phenomenological experience of self always functions in context, and future studies need to examine the nuances of parenting behaviors as it operates within and between societies. In an increasingly mobile society, the importance of examining the intersection of where two cultures collide become fundamentally important to understanding and addressing the needs of children from a multicultural world.

REFERENCES

- Asch, S. E. (1987). *Social Psychology*: Oxford University Press.
- Astington, J., & Baird, J. A. (Eds.). (2005). *Why language matters for theory of mind*. New York: Oxford University Press.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.
- Bartsch, K., & Wellman, H. (1995). *Children talk about the mind*. New York: Oxford University Press.
- Camras, L. A., Oster, H., Campos, R., Ujiie, T., Miyake, K., & al., e. (1998). Production of emotional facial expressions in European-American, Japanese, and Chinese infants. *Developmental Psychology*, 34, 616-628.
- Carpendale, J., & Lewis, M. (2004). Constructing an understanding of mind. The development of children's social understanding within social interaction. *Behavioral and Brain Sciences*, 27, 79-151.
- Chao, R. K. (1994). Beyond Parental Control and Authoritarian Parenting Style: Understanding Chinese Parenting Through the Cultural Notion of Training. *Child Development*, 65(4), 1111-1119.
- Chao, R. K. (1995). Chinese and European American cultural models of the self reflected in mother's child rearing beliefs. *Ethos*, 23(3), 328-354.
- Chen, Guarnaccia, P. J., & Chung, H. (2003). Self-attention as a mediator of cultural influences on depression. *International Journal of Social Psychiatry*, 49(3), 192-203.
- Chen, X., Hastings, P. D., Rubin, K. H., Chen, H., Cen, G., & Stewart, S. L. (1998). Child-rearing attitudes and behavioral inhibition in Chinese and Canadian toddlers: A cross-cultural study. *Developmental Psychology*, 34, 677-686.
- Cutting, A., & Dunn, J. (1999). Theory of mind, emotion understanding and family background: Individual differences and interrelations. *Child Development*, 4, 853-865.

- Dunn, J., Brown, J., & Beardsall, L. (1991). Family talk about feeling states and children's later understanding of others emotions. *Developmental Psychology*, 27, 448-455.
- Farrant, K., & Reese, E. (2000). Maternal style and children's participation in reminiscing: Stepping stones in children's autobiographical memory Development. *Journal of Cognition and Development*, 1(2), 193-225.
- Fivush, R., & Wang, Q. (2005). Emotion talk in mother-child conversations of the shared past: The effects of culture, gender, and event valence (Vol. 6, pp. 489–506): Lawrence Earlbaum.
- Garrett-Peters, P., & Fox, N. A. (2007). Cross-cultural differences in children's emotional reactions to a disappointing situation. *International Journal of Behavioral Development*, 31(2), 161-169.
- Gilbert, D. T. (1998). Ordinary personology (Vol. 2, pp. 89–150).
- Greene, M. L., & Way, N. (2005). Self-esteem trajectories among ethnic minority adolescents: A growth curve analysis of the patterns and predictors of change (Vol. 15, pp. 151–178): Blackwell Synergy.
- Greenfield, P. M., Keller, H., Fuligni, A., & Maynard, A. (2003). Cultural pathways through universal development. *Annual Review of Psychology*, 34(4), 701-713.
- Hansen, C. (1983). *Language and logic in ancient China*. Ann Arbor: University of Michigan Press.
- Hansen, C. (1989). Language in the heart-mind. In R. E. Allinson (Ed.), *Understanding the Chinese mind: The philosophical roots*. (pp. 77-124). London: Oxford University Press.
- Happe, F. (1995). The role of age and verbal ability in the theory of mind task performance of subjects with autism. *Child Development*, 66, 843-855.
- Harris, P. L., Olthof, T., Terwogt, M. M., & Hardman, C. E. (1987). Children's knowledge of the situations that provoke emotion. *International Journal of Behavioral Development*, 10(3), 319.
- Harris, P. L., Rosnay, M., & Pons, F. (2005). Language and children's understanding of mental states. *Current Directions in Psychological Science*, 14, 69-73.
- Hsu, F. L. K. (1971). Psychosocial homeostasis and jen: Conceptual tools for advancing Psychological Anthropology. *American Anthropologist*, 73(1), 23-44.

- Ireton, H. (1992). *Child development inventory*. Minneapolis, MN: Behavioral Science Systems.
- Kagıtcıbası, C. (2005). Autonomy and relatedness in cultural context: Implications for self and family. *Journal of Cross-Cultural Psychology*, 36(4), 403-422.
- Kagan, J., Arcus, D., Snidman, N., Feng, W. Y., Hendler, J., & Greene, S. (1994). Reactivity in infants: A cross national comparison. *Developmental Psychology*, 30(342-345.).
- Kim, M. S. (2002). *Non-Western Perspectives on Human Communication: Implications for Theory and Practice*: Sage Publications.
- Lewis, C., Freeman, N. H., Kyriakidou, C., Maridaki-Kassotaki, K., & Berridge, D. M. (1996). Social influences on false belief access: Specific sibling influences or general apprenticeship? *Child Development*, 67(6), 2930-2947.
- Maas, A., Kurasawa, M., Politi, F., & Suga, S. (2006). Do verbs and adjectives play different roles in different cultures: A cross-linguistic analysis of person representation. *Journal of Personality and Social Psychology*, 90(5), 734-750.
- Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, 98(2), 224-253.
- Martini, M. (1998). Family dynamics during mealtimes in two cultural groups in Hawaii. *Family Development and Parenting*, 5(1), 23-34.
- Masuda, T., & Nisbett, R. E. (2001). Attending holistically versus analytically: comparing the context sensitivity of Japanese and Americans. 81(5), 922-934.
- Meins, E., & Fernyhough, C. (1999). Linguistic acquisitional style and mentalising development: The role of maternal mind-mindedness. *Cognitive Development*, 14, 363-380.
- Meins, E., Fernyhough, C., Fradley, E., & Tuckey, M. (2001). Rethinking maternal sensitivity: Mothers' comments on infants' mental processes predict security of attachment at 12 Months (Vol. 42, pp. 637-648): Cambridge Univ Press.
- Meins, E., Fernyhough, C., Wainwright, R., Clark-Carter, D., Das Gupta, M., Fradley, E., et al. (2003). Pathways to understanding mind: Construct validity and predictive validity of maternal mind-mindedness. *Child Development*, 74(4), 1194-1211.

- Meins, E., Fernyhough, C., Wainwright, R., Das Gupta, M., Fradley, E., & Tuckey, M. (2002). Maternal Mind-Mindedness and attachment security as predictors of Theory of Mind understanding. *Child Development*, 73(6), 1715-1726.
- Miller, P., Wiley, A., Fung, H., & Liang, C. (1997). Personal storytelling as a medium of socialization in Chinese and American families. *Child Development*, 68(3), 557-568.
- Morris, M. W., & Peng, K. (1994a). Culture and cause: American and Chinese attributions for social and physical events (Vol. 67, pp. 949-971).
- Morris, M. W., & Peng, K. (1994b). Culture and cause: American and Chinese attributions for social and physical events. 67(6), 949-971.
- Mullen, M., & Yi, S. (1995). The cultural context of talk about the past: Implications for the development of autobiographical memory. *Cognitive Development*, 10, 407-419.
- Perner, J. (1991). *Understanding the representational mind*. Cambridge, MA: MIT Press.
- Ruffman, T., Perner, J., Naito, M., Parkin, L., & Clements, W. A. (1998). Older (but not younger) siblings facilitate false belief understanding. *Developmental Psychology*, 34(1), 161-174.
- Ruffman, T., Slade, L., & Crowe, E. (2002). The relationship between children's and mother's mental state language and theory of mind understanding. *Child Development*, 73(3), 734-751.
- Symons, D. (2004). Mental state discourse, theory of mind, and the internalization of self-other understanding. *Developmental Review*, 24, 159-188.
- Tardif, T. (1996). Nouns are not always learned before verbs: Evidence from Mandarin speakers' early vocabularies. *Developmental Psychology*, 32(3), 492-504.
- Tardif, T., Gelman, S. A., & Xu, F. (1999). Putting the "Noun Bias" in context: A comparison of English and Mandarin. *Child Development*, 70(3), 620-635.
- Tardif, T., & Wellman, H. (2000). Acquisition of mental state language in Mandarin and Cantonese speaking children. *Developmental Psychology*, 36(1), 25-43.
- Taumoepeau, M., & Ruffman, T. (2006). Mother and infant talk about mental states relate to desire language and emotion understanding. *Child Development*, 77(2), 465-481.

- Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Wang, Q. (2001). "Did you have fun?"-American and Chinese mother-child conversations about shared emotional experiences. *Cognitive Development* 2, 16.
- Wang, Q. (2003). Emotion situation knowledge in American and Chinese preschool children and adults. *Cognition and emotion*, 17, 725-746.
- Wang, Q., Hutt, R., Kulkofsky, S., McDermott, M., & Wei, R. (2006). Emotion situation knowledge and autobiographical memory in Chinese, immigrant Chinese, and European American 3-year-olds. *Journal of Cognition and Development*, 7(1), 95-118.
- Wang, Q., Leichtman, M.-D., & Davies, K. (2000). Sharing memories and telling stories: American and Chinese mothers and their three year olds. *Memory* 8(3), 159-177.
- Way, N., & Chen, L. (2000). Close and General Friendships Among African American, Latino, and Asian American Adolescents From Low-Income Families (Vol. 15, pp. 274).
- Wellman, H. (1990). *The child's theory of mind*. Cambridge: MIT Press.
- Wu, D. (1986). Chinese childhood socialization. In M. H. Bond (Ed.), *The handbook of Chinese psychology*. Hong Kong: Oxford University Press.